

18. (New) The connector system of claim 17, wherein the information includes at least one of an amount of image formation, residual toner quantity, and an ID number.

19. (New) The connector system of claim 17, wherein said memory is maintained during disconnection of the cartridge to the apparatus.

20. (New) The connector for a cartridge of electronic parts according to claim 1, wherein a forward end of a holding member which holds the circuit board and an exposed end portion of at least one lead penetrating the circuit board terminate on substantially a same face at a rearmost portion of the connector.

REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-20 are presently active; Claims 1-8 having been amended by way of the present amendment; and Claims 10-20 having been added, without adding new matter, by way of the present amendment.

In the outstanding Office Action, Claims 1-9 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite; and Claims 1-9 were rejected under 35 U.S.C. §102(b) as being anticipated by Bethurum (U.S. Patent 5,563,770).

Claims 1-9 stand rejected under 35 U.S.C. §112, second paragraph. These rejections are respectfully traversed.

Claims 1-8 have been amended, without adding new matter, to further clarify the subject matter and correct informalities, including grammatical and idiomatic errors. Claims 1, 2, 4, 5 and 6 have been amended as suggested in the Office Action. Claim 1 has been amended to replace "which is a plug connector fixed to a side plate of the cartridge of

electronic parts,” with --which removably attaches to an apparatus--. Claim 2 has been amended to replace “relatively slid” with --slideable relative to each other--. Claim 4 has been amended to replace “the circuit board covers an open portion of the plug housing, and a closed cross-section is formed by the circuit board and the plug housing” with --the circuit board covers an open portion of the plug housing thereby forming a closed cross-section with the plug housing--. Claim 5 has been amended to replace “is incorporated” with --are unitarily formed--. Claim 6 has been amended to delete “the substantially same face” and “most backward position.” Thus, it is respectfully submitted the 35 U.S.C. §112, second paragraph, rejection has been overcome.

Claims 1-9 were rejected under 35 U.S.C. §102(b) as being anticipated by Bethurum. These rejections are respectfully traversed.

Claim 1 has been amended to recite a connector comprising a plug housing including a back face opposing to the side plate of the cartridge of the electronic parts and holding at least one contact, a cover housing combined with the plug housing, and a circuit board held by the plug housing, the cover housing and the at least one contact, the circuit board electrically connected to the apparatus via the contact. The amendment to Claim 1 finds support in the Specification, page 8, line 14 to page 9, line 5, and Figures 2 and 3.

Thus, Claim 1 defines a connector having a circuit board held by the plug housing, the cover housing and the at least one contact, the circuit board electrically connected to the apparatus via the contact.

Bethurum discloses that:

An IC card is provided which can be constructed at low cost and which allows adjustment of circuit board position. The circuit board (30, FIG. 2) has forward and rearward end portions (34, 36) which are mounted directly on forward and rearward connectors (12, 14), without a separate frame to mechanically hold them together. A cover (60) with upper and lower parts (66, 68) is mechanically mounted to the connectors and is coupled to the circuit board only in an electrical ground.³ Fig. 6

³ Bethurum, Abstract, lines 1-9.

shows the manner in which the upper and lower cover parts 66, 68 are mounted on the front and rear connectors 12, 14.⁴

Hence, the circuit board 30 has forward and rearward end portions 34, 36, which are mounted directly on forward and rearward connectors 12, 14, without a separate frame to mechanically hold them together. Bethurum does not disclose that a plug housing holds at least one contact and that the plug housing is held by all of the plug housing.

Thus, it is respectfully submitted that independent Claim 1 each of the claims depend therefrom patentably define over Bethurum.

Independent Claim 10 has been added, based on the specification as originally filed, Claim 10 incorporates the subject matter of Claim 7 and including all of the limitations of the respective base claim.

Specifically, new Claim 10 is directed towards a connector for a cartridge of electronic parts wherein the cover housing includes a protruding section configured to attach to the cartridge of electronic parts.

Claim 10 is believed to patentably define over the applied prior art because as discussed above Bethurum discloses connectors 12 and 14 and a cover 60. However, there is no disclosure in Bethurum of a cover housing including a protruding section configured to attach to the cartridge of electronic part. Thus, Claim 10 and Claim 11 which depends from Claim 10 are believed to patentably define over the applied prior art.

Claim 12 has been added by way of the present amendment. The new claim recites features found in Claim 1 and in the Specification.

Specifically, new Claim 12 recites the circuit board includes memory.

The card as disclosed in Bethurum is inserted into an electronic device and does not have a circuit board including a memory configured communicate with the apparatus to update information related to the cartridge, as recited in Claim 12.

⁴ Bethurum, Col. 3, lines 52-55.

Claim 12 is believed to patentably define over the prior art for these reasons and the reasons as discussed above with reference to Claim 1.

New Claim 15 has been added by way of the present amendment. The new claim recites features found in Claim 1 and in the specification.

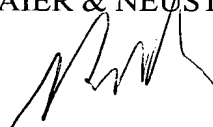
Specifically, new Claim 15 recites the subject matter of amended Claim 1 and includes a cartridge configured to removably attach to the image apparatus.

Claim 15 is believed to patentably define over the applied prior art for the same reasons as discussed above with reference to Claim 1. Thus, Claim 15 and each of the claims depending therefrom patentably define over the applied prior art.

Consequently, in view of the present amendments and above discussion, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable decision to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier
Registration No. 25,599
Robert T. Pous
Registration No. 29,099
Attorneys of Record



22850

Tel: (703) 413-3000
Fax: (703) 413-2220
GJM/RTP/JD:ys
I:\atty\Jd\205753\205753.ame-3-edited.doc

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IN THE SPECIFICATION

Please replace the paragraph beginning on Page 14, line 4, with the following paragraph:

--Elements, which [is] are necessary to protrude backward with respect to line L, for attaching the plug type connector 1 onto the side plate of the toner cartridge, for example, the attaching hooks 9 and the positioning ribs 38 are provided in the cover housing 7.--

IN THE CLAIMS

Please amend the claims as shown below:

--1. (Amended) A connector for a side plate of a cartridge which removably attaches to an apparatus and contains [of] electronic parts[, which is a plug type connector fixed to a side plate of the cartridge of electronic parts], comprising:

a plug housing including a back face opposing to the side plate of the cartridge of the electronic parts and holding at least one contact;

a cover housing combined with the plug housing; and

a circuit board held by [both the housings] the plug housing, the cover housing and the at least one contact, the circuit board electrically connected to the apparatus via the contact.

2. (Amended) The connector for a cartridge of electronic parts according to claim 1, wherein the plug housing and the cover housing are combined with each other and [being

relatively slid] are slideable relative to each other in a direction parallel with a surface of the circuit board.

3. (Amended) The connector for a cartridge of electronic parts according to claim 2, wherein the cover housing includes guide grooves configured to guide [a sliding motion of] the plug housing in a sliding motion, and edge sections of the circuit board and edge sections of the plug housing [are slid] both which are slideable in the guide grooves.

4. (Amended) The connector for a cartridge of electronic parts according to claim 1, wherein the circuit board is connected with the plug housing [in] such [a manner] that the circuit board covers an open portion of the plug housing[, thereby forming [and] a closed cross-section [is formed by the circuit board and] with the plug housing.

5. (Amended) The connector for a cartridge of electronic parts according to claim 1, wherein a unit including the plug housing, the circuit board and a contact are unitarily assembled [is incorporated] into the cover housing.

6. (Amended) The connector for a cartridge of electronic parts according to claim 5, wherein a forward end of a holding member [to hold] which holds the circuit board and an exposed end portion of a lead penetrating the circuit board are located on [the substantially same face as] the back face of the plug housing[, and they are located at the most backward position of the unit].

7. (Amended) The connector for a cartridge of electronic parts according to claim 6, wherein the cover housing includes a protruding section [for] configured to attach[ing] to the cartridge of electronic parts.

8. (Amended) The connector for a cartridge of electronic parts according to claim 1, wherein a lock section [for] is configured to lock[ing] both the plug housing and the cover housing, which are combined with each other, and is arranged in a space surrounded by the plug housing and the cover housing.

10-20. (New)--